THE FUNCTION OF THE TUBER CINEREUM.

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IN the "Therapeutic Gazette"[1] it was first stated that a thermotaxic centre existed about Schiff's crying centre. Schiff was the first to observe that a puncture in the gray matter between the thalamus and corpus striatum caused a peculiar cry in the rabbit. In a previous number of this journal I have located this thermotaxic centre in the gray matter about the anterior end of the third ventricle. In this journal I have also stated my belief that this thermotaxic centre and the thermo-polypnœic were one and the same.[2] This idea was based upon the observation that a high temperature and rapid respiration ensued from the same puncture.

Lately I have tried to discover the exact seat of the polypnœic centre.

Rabbits were used, and put in a box whose temperature was about 100° F., and heated up. When their temperature was about 106°–107° F., they were removed, and the thermo-polypnœa noted. Then the skull was trephined and the cerebral cortex removed, exposing the thalami. Ether was used to a certain limit. Then punctures were made into the locality about the thalamus. It was soon found that only deep punctures arrested the polypnœa. The corpus striata could be removed and the septum lucidum scooped out, yet polypnœa persisted in undiminished intensity; but when a probe was thrust down at the very anterior edge of the thalami, then the polypnœa ceased. To determine more accurately the point at the base of the brain, I ligated in an etherized rabbit the carotids, and heated him till polypnœa was produced. Then the skull was trephined, and the anterior part of it removed down to the orbits. With a seeker, the dura being previously detached, I lifted up the brain and scarified the lamina cinerea with a hook-pointed knife. But no effect was seen upon the polypnœa. If I cut the optic commissure, then polypnœa was at once arrested. If I punctured the tuber cinereum just above the commissure, then the same arrest ensued. If I touched the tuber just behind the commissure, then the polypnœa ceased. Upon examining the brains where the puncture was made from above, it was found that the probe always grazed the tuber cinereum. I also noted that pressing a tuft of cotton against the optic commissure, or a slight puncture of the tuber, caused an increase of normal or polypnœic respiration. To determine if the tuber had thermotaxic functions, I punctured it in a normal animal, the carotids being previously ligated. The temperature rose to 106° F. in two hours, although the animal was bound down. Ligation of the carotids does not materially change the temperature; but fastening of the animal does. Further, the operation causes considerable shock, which lowers temperature. In spite of all these antagonistic acts, the temperature rose steadily after the puncture of the tuber. If now I heated the animal whose tuber had been punctured, then no polypnœa ensued, although the temperature reached 109° F. All these facts show that the tuber cinereum is the centre of polypnœa and thermotaxis.

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[1] September, 1887.

[2] See page 433.

These conclusions are founded upon sixteen experiments.

COCAINE ANÆSTHESIA OBTAINED BY MEANS OF CATAPHORESIS.

The "Medical News," November 15, 1890, quoting from the "Lancet," gives Dr. Arthur Harries' suggestion, that when local anæsthesia is required, cocaine hydrochlorate, administered by means of cataphoresis instead of hypodermically, should be employed. The anæsthesia is complete, and toxic symptoms do not appear. A ten-per-cent. solution of cocaine is used to saturate a flannel-padded positive electrode that corresponds in size to the desired area of anæsthesia. A large negative electrode, soaked in salt solution, is placed on some suitable surface of the body, and a current of twenty-five milliampères is then passed for forty minutes. L. F. B.